

IN THE DRAWINGS:

Replace Figures 1, 3 and 5 with the figures on the substitute sheets attached hereto.

REMARKS

The Office Action of January 14, 2009, has been carefully considered.

Objection has been raised to the drawings under 37 CFR 1.83(a) as not showing the "wheels" recited in original Claim 13. Replacement drawings have now been submitted for Figures 3 and 5 showing the wheels, and designating the wheels as element 12.

In addition, objection has been raised to the specification on the basis that the claimed "wheels" have not been described in the specification with a corresponding reference numeral. The specification has now been amended at page 9, lines 24-27, to describe the wheels 12 mounted on rotary disc 1, as shown in new Figures 3 and 5.

In addition to the amendments described above, Figure 1 has been amended to designate the figure as "prior art," and the specification has been amended to utilize proper subject matter headings and to remove the improper reference to the claims.

Claims 1-16 have been rejected under 35 USC 103(a) over Sierra et al in view of Ajnefors.

Claims 1-16 have now been canceled and replaced by a new set of Claims 17-32, written in proper form for U.S. practice.

The claimed invention is an improvement on the prior art shown in Fig. 1, and discussed in the specification. This is a rotary disc for cleaning of underwater surfaces comprising a plurality of nozzles. When cleaning fluid is forced through the nozzles, the disc rotates in a direction opposite to the expulsion of the water, as a result of the reactive force of the water.

The prior art arrangement was disadvantageous in that the rotation was determined by the force of the water ejected by

the nozzles. More importantly, this arrangement required a majority of the nozzles to be oriented in a manner which would result in rotation of the disc, whether or not it resulted in the most efficient cleaning.

In contrast, the claimed device utilizes a means for setting the rotary member in rotation by means of a separate propulsion device, and this device rotates the disc in the same direction as the primary flow of fluid through the nozzles.

The basis of the invention is the discovery that washing efficiency is significantly increased when the nozzles are inclined at a manner such that a velocity component v_t for the water leaving the nozzle, that is tangential in relation to the circular line on the rotary disc along which the nozzle is arranged, is the same as, rather than opposite to, the direction of rotation of the disc. At the same time, other benefits are obtained because there is no longer a connection between rotation of speed, water pressure and nozzle inclination, and these parameters may be independently controlled.

A particular advantage is obtained by directing the nozzles such that the water ejected therefrom also has a velocity component that is radially outward from the disc center, thereby providing a suction force between the disc and the surface to be cleaned, rather than a repulsing force.

Sierra et al discloses a device for cleaning underwater surfaces in which a plurality of rotating brushes are attached to a support. The support also includes wheels for moving the support and brushes, but the support itself does not rotate. There are no nozzles provided, or means for providing such nozzles with liquid under pressure through a hollow spindle concentric with a rotational axis.

Ajnefors discloses a washing device in which a nozzle is

arranged to pivot rapidly around a vertical axis, and slowly oscillate slowly about a horizontal axis between upper and lower limits, in order to distribute the washing effect over a given surface area. The nozzle is not arranged on a rotating disc, and there is no reason seen why one of ordinary skill in the art would locate such a nozzle *on the rotating brush of Sierra et al*, since Sierra et al uses an entirely different means for cleaning.

It is noted moreover that the claimed invention utilizes on each rotary disc member a plurality of nozzles arranged along a circular line on a surface of the disc, with the disc being turned in a direction opposite to the reactive force provided by the nozzles. There is nothing in the combination of Sierra et al and Ajnefors which would suggest locating a plurality of nozzles on a single disc in this manner, and rotating the disc in the direction opposite to the reactive force.

Finally, Applicants point out that according to Ajnefors it is the nozzles themselves which rotate, while according to the invention it is a disc on which the nozzles are mounted which rotates, and the velocity components are determined. Placement of the *rotating* Anjefours nozzles on the rotating brushes of Sierra et al does not therefore result in the invention, since there is no fixed direction for the rotating nozzles and the velocity components of the nozzles are constantly changing.

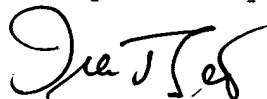
Accordingly, there is absolutely no suggestion of the invention as claimed from the combination of Sierra et al and Ajnefors, and withdrawal of this rejection is requested.

In view of the foregoing amendments and remarks, Applicants submit that the present application is now in condition for allowance. An early allowance of the

application with amended claims is earnestly solicited.

In order to ensure full consideration of references cited in the PCT Search Report, Applicants submit herewith a copy of the PCT Search Report together with a Form PTO-1449 listing references cited in the PCT Search Report, and copies of non-US Patent references. Also listed on the Form PTO-1449 and provided where appropriate are the patents discussed in the present specification not previously cited (one such reference is unavailable). As this Information Disclosure Statement is filed after the first Office action, the fee is paid under 37 CFR 1.17(p).

Respectfully submitted,

A handwritten signature in dark ink, appearing to read 'Ira J. Schultz', is written over the typed name.

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